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# duck virus enteritis

an old world disease  
... in the new world

# DUCK VIRUS ENTERITIS

## an old world disease

### . . . in the new world

Duck virus enteritis, or Dutch duck plague, is a contagious disease of waterfowl that causes internal bleeding and severe diarrhea and kills many infected birds. Domestic and wild ducks, geese, and swans are susceptible.

Before 1967, this foreign disease was unknown in the United States. That year it suddenly appeared in the heart of the commercial duck industry on Long Island. Prompt enforcement of control measures confined the outbreak to New York State.

Duck virus enteritis does not affect humans.

## WHERE IT OCCURS

Duck virus enteritis is established in the Netherlands. Occasional outbreaks occur in a small area, but the disease is not widespread.

It was described as a distinct disease in 1949. Dutch scientists then learned that signs of duck virus enteritis were observed in ducks in 1923, 1932, and 1942. However, the earlier outbreaks had been mistakenly diagnosed as fowl plague.

Duck virus enteritis has also been reported in Belgium, India, and China. The disease has not become widespread, and it has not invaded neighboring countries.



Duck infected with duck virus enteritis is unable to walk normally. It creeps and stretches its wings listlessly.

Most U.S. outbreaks have occurred in commercial duck flocks on Long Island. The disease has also killed free-flying waterfowl on Long Island and a small number of migratory birds raised in captivity in New York State. Outbreaks have occurred in free-flying waterfowl in Maryland and Pennsylvania.

In spite of careful investigations, the source of the original U.S. outbreak has not been determined.

## SPREAD

Some scientists think duck virus enteritis is usually spread by infected waterfowl that shed the virus in droppings.

The virus survives in water. It may be spread through polluted, stagnant, and slow-moving pools, ponds, and waterways. Waterfowl may pick up the disease by drinking or swimming in polluted water or eating contaminated feed. The



Necrotic lesions (raised grayish-white streaks) are seen in the esophagus.





**Darkened spleen (lower left) and hemorrhagic heart (upper right) are results of duck virus enteritis.**

virus may enter susceptible birds through the mouth, nose, cloaca, or breaks in the skin.

The virus may possibly be spread in other ways — on equipment; through feathers, eggs, manure, and offal; and by cats, rats, dogs, seagulls, lice, mites, mosquitoes, and man. Some people believe that migratory waterfowl may be carriers.

Duck virus enteritis may occur at any season. Many outbreaks are associated with extremes of weather. A combination of stresses — overcrowding of ducks, unsanitary pens, other diseases, and bad weather — may increase the severity of an outbreak.

The virus does not survive long in a clean, dry environment. It is readily killed by heating and disinfectants.

## SUSCEPTIBLE WATERFOWL

The first outbreaks in the United States occurred in breeder flocks of Pekin ducks from 3 months to 2 years old. Since that time, the disease has appeared in breeder and market ducks of all ages — even in ducklings a few days old.

Duck virus enteritis has also been diagnosed in noncommercial Muscovy ducks and mute swans in the United States.



**Hemorrhagic areas in the liver of a duck infected with duck virus enteritis show up as red spots.**

Dutch research workers found that many ducks are susceptible — Pekin, Khaki Campbell, Indian runner, garganey teal, gadwall, widgeon, tufted, shoveler, common pochard, shell, common eider, Muscovy, and wood. Mute swans, bean geese, and whitefronted geese are also susceptible.

There are some indications that free-flying waterfowl may be carriers of the virus, even though they do not show signs of infection. Seagulls and mallards have been known to mingle with commercial ducks shortly before some outbreaks.

Duck virus enteritis is thought to affect only ducks, geese, and swans.

## SIGNS

Susceptible ducks may show signs of duck virus enteritis 3 to 7 days after they are exposed. Sometimes ducks are found dead without signs of the disease having been observed.

Infected birds become listless, lose their appetites, and develop a great thirst and watery diarrhea. Occasionally, other signs are swollen eyelids and drooping wings.

Egg production drops markedly in infected breeder ducks. The eggs that are laid are usually fertile; hatchability is not affected. In birds that recover, signs of disease disappear and egg production slowly returns.

The death rate from duck virus enteritis has reached 60 percent of infected waterfowl in some flocks. In other flocks, only a few of the infected birds died. Losses are higher in flocks kept in unsanitary pens and among waterfowl affected with other diseases.

## POST MORTEM LESIONS

Post mortem lesions most often noted are spots of dead tissue in the esophagus and cloaca.

Hemorrhages usually occur in the thymus gland, esophagus, liver, and in the small intestine, including the lymphoid rings. Not infrequently hemorrhages take place in other internal organs, including the male and female reproductive tracts. The infected spleen is uniformly dark in color and may be smaller than normal.

## HOW TO GET A DIAGNOSIS

If you suspect duck virus enteritis in your flock—or if you have waterfowl that die from a disease that is unknown to you—notify your veterinarian, your county agricultural agent, or a State or Federal disease-control official at once. Officials may arrange to send blood or live waterfowl showing signs of disease to a diagnostic laboratory.

## TREATMENT

Successful treatment for duck virus enteritis has not yet been developed.

## VACCINATION

Efforts are continuing to develop a vaccine that will protect waterfowl without spreading duck virus enteritis. Such a vaccine—when available—may be used to help control the disease.



The hemorrhagic spots in the intestinal walls and the darkened, swollen band (top center) are typical of duck virus enteritis.





**Necrotic lesions in the cloaca as shown here are unique with this disease.**

## CONTROL

When Pekin ducks in a commercial flock began dying from an unidentified cause in January 1967, the Long Island producer sent them to the Long Island Duck Research Laboratory. The disease was tentatively diagnosed as duck virus enteritis. The USDA's Plum Island Laboratory confirmed the diagnosis. This was the first time duck virus enteritis had been diagnosed in the United States.

Immediately, a cooperative State-Federal program was launched. University scientists joined government veterinarians in an attempt to control and eradicate the disease.

In the first outbreak all waterfowl and eggs were destroyed and buried; State and Federal indemnities were paid. Contaminated premises were thoroughly cleaned and disinfected.

Later, quarantines were established for domestic waterfowl and their products originating in Suffolk County, Long Island, N.Y. In 1969, only ducklings from approved flocks were permitted to move interstate from the quarantine area. An approved flock is one that has been inspected, tested, and found not infected. Maintenance inspections and tests are conducted in approved flocks at regular intervals to make certain the disease does not appear.

## WHAT YOU CAN DO

Watch for signs of duck virus enteritis or other unusual signs of disease in your flock.

Report disease signs at once to your veterinarian, your county agricultural agent, or State or Federal disease-control officials. Also report unexplained deaths of domestic and wild waterfowl on your premises.

Cooperate with State and Federal officials. Observe quarantines that cover movement of birds and other products.

Ask your local veterinarian for a copy of current regulations for duck virus enteritis.

Keep your pens and premises clean. The run-off water from moats should be treated by antipollution measures.

Do not overcrowd birds.

Get your replacement birds only from flocks known to be free of duck virus enteritis.

Isolate new birds for 10 days before adding them to your flock.

Whenever possible, keep market ducks in same pen until slaughter.

Clean and disinfect pens thoroughly when flock is marketed. Remove all droppings and filth. For disinfecting, consult with State or Federal animal health officials.

Collect commercial ducks that you suspect have died from duck virus enteritis as soon as you find them. If the carcasses are not to be sent to a laboratory, burn or bury them promptly. Do not discard carcasses or leave them where they can contaminate water.

If you dress or eviscerate wild waterfowl in the field, bury all offal.

Keep visitors off your premises.

Do not visit other duck farms.

*This is one of a series of publications designed to acquaint American livestock and poultry producers with foreign diseases. If you want more information, contact your local veterinarian, your county agent, or State or Federal animal disease-control officials.*

For single copies, send a post card requesting PA 925, "Duck Virus Enteritis," to Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250. Include your name, address, ZIP code.

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